

# **Wisconsin Urban & Community Forests**

*A Quarterly Newsletter of the Wisconsin Department of Natural Resources, Forestry Program*

## Trees and Highways

by Roald Evensen  
Keenan Group  
and  
Leif Hubbard  
Wisconsin Department of Transportation

**T**he state highway through your community has been scheduled for complete reconstruction. You and your neighbors will welcome the new road surface, curb and gutter, and handicapped accessibility that the project will provide. The road will be safer.

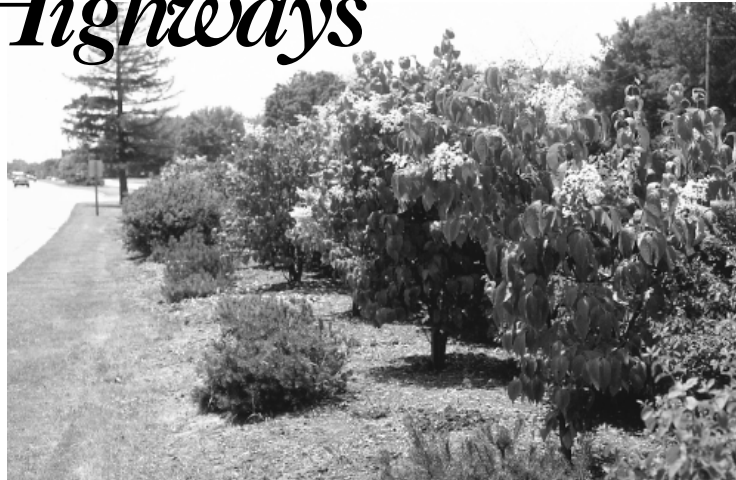
But you make an unpleasant discovery: due to lane widening for increased traffic safety, all of the existing street trees will be lost during reconstruction. The reconstruction plan does not include replacement street trees, as the design of the new boulevard area is not large enough for planting. What can you do?

First, the bad news: it may be too late to alter the course of the project.

The good news is that citizens can assure that trees and other landscape enhancements are a part of their local highway projects—if they participate in the planning process in the early stages. State and federal grants can help communities plan projects to assure that their new roads are both safe and attractive.

### Planning How Far Ahead?

Highway projects of the Wisconsin Department of Transportation can take four to six years or more of planning and preparation from concept to completion. Construction contracts are prepared and let two to six months before a project is built. The tree enthusiasts in your community—working through your local city, village or town officials—need to begin working with WISDOT up to four to six years before the highway, interchange or main street is due to be built or reconstructed. Your municipal or county highway official—the village clerk, city planner or county



Trees and shrubs can be incorporated into road reconstruction as in this median planting on Highway 15 in Rock County.

Photo: WISDOT

highway commissioner—will be familiar with the projects planned for your area by referencing the WISDOT Six-Year Highway Improvement Program Manual, updated every two years, which lists all planned projects across the state.


### Design Considerations

Once you've determined that a highway project is planned for your community and have been assured that it's not too late to include trees in the project,

*continued on page 4*

## Gypsy Moth—Coming to a Tree Near You

Inside this issue is a new gypsy moth poster, put out by DNR. The back of the poster is filled with up-to-the-minute information on the insect's life cycle, its effects and strategies to control it. More copies are available from DNR Forestry, PO Box 7921, Madison, WI 53707. Ask for publication number FR-131-98.

The DNR is also producing a packet of activities on gypsy moth geared for grades 6 through 12. Activities include the insect's history, its life cycle and one on public relations. Copies are also available from DNR Forestry. Ask for publication number FR-144-99. 



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## Community Profile:

### Tree City USA:

Since 1997

**Population:** 6,306

### Street Tree

**Population:** 527

**Street Miles:** 50

**Number of Parks:** 10

**Total Park Acreage:**  
71.5

### Primary Industries:

St. John's Military  
Academy

University Lake School

Nashotah House

The Old Fish Hatchery

## Program Profile:

### Street Trees and

### Parks Staff:

Mike Scaff, director,  
DPW

Chrys Mursky, tree  
board chair

John Stockham, city  
planner

6-person crew

### Equipment:

bucket truck  
loader  
powersaws

### 1998 Tree Budget:

\$19,500

## Community Profile:

# City of Delafield

by John Van Ells

DNR Southeast Region

The city of Delafield encompasses 11 square miles of gently rolling terrain in Waukesha County, located in southeastern Wisconsin. The city of Delafield was incorporated in 1959. Its geographical location provides access to many inland lakes and an abundance of countryside. Until the 1960's the Delafield area, known locally as "Lake Country," was a relatively rural area surrounding Lake Nagawicka. Nearly 1,000 acres in size, Lake Nagawicka is the largest lake in the vicinity. Many of the older homes around the lake were summer homes and resorts. Downtown Delafield, which is located on the west side of the lake, served as the trade center of the lake summer homes and resort areas and the agricultural lands.

Like many areas of Wisconsin, the city is beginning to experience the pressures of development. Situated 34 miles west of downtown Milwaukee, new businesses and subdivisions are appearing and affecting the rural character of the land. The two primary commercial areas in the city are the downtown area—along the south shore of the lake—and the Interstate 94/Highway 83 interchange. In recent years the downtown business district, often referred to as "historic Delafield," has evolved into a specialty shopping district with a high concentration of restaurants, antique shops and specialty stores.

The majority of the shoreline is developed, with the exception of the kettle area on the north end of the lake. Most of the areas with remaining natural shoreline lie along the upper northwestern shore, where a series of wetland islands and channels are located. The rest of the shoreline has manicured lawns, which are of limited wildlife value and aesthetic appeal. Most new residential development has been within off-lake subdivisions.

In 1997 Delafield applied for an urban forestry grant to inventory existing vegetation on the street right-of-way, develop tree ordinances and provide public education. The inventory assessed the nature of the urban forest resource in terms of existing trees, site factors and planting needs. The data are used to plan the planting, maintenance and removal activities in the community.

With 50 miles of road in the city, you would assume there is a substantial number of trees along the



Photo: City of Delafield

Many residential streets lack sidewalks, which adds to Delafield's rural character.

streets, but that isn't so. Many of the roads in the city, especially around Lake Nagawicka, have narrow rights-of-way with private property extending right up to the road surface, which explains why the inventory shows only 527 trees along the streets.

Environmental corridors containing concentrations of steep slopes, natural wetlands and existing forest cover can be found within the city. Since parts of Delafield are rural in nature, with trees abutting the road, the inventory had to be modified to include unusual grouping of trees. There are 76 median plantings and 74 natural groups of trees and brush, which are not included in the inventory report. It would have been too time consuming and difficult to gather and enter data into the computer program.

*continued on next page*



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**Managing Editor:** Dick Rideout

### Contributing Editors:

Cindy Casey

Don Kissinger

Tracy Salisbury

Kim Sebastian

David Stephenson

John Van Ells

**Design, Layout & Graphics:** David Stephenson

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## *Big Project in a Small Community*

by Cindy Casey  
DNR West Central Region

Interest in community tree care and management extends beyond high-profile projects in big cities. Recent activities in the Polk County village of Dresser, population 647, illustrate that community trees have universal appeal and value. Although “urban forestry” was an unfamiliar concept in Dresser just one year ago, it has become a positive and distinguishing characteristic of this small, rural village.

The desire to become a Tree City USA prompted the village to seek an urban forestry grant in 1998 to help meet Tree City requirements. As it happened, Dresser’s interest in establishing a municipal tree care program coincided with tree trimming plans by Northern States Power. NSP encouraged the village to expand their grant project to include participation in the company’s Community Tree Renewal program, meaning they would seek additional urban forestry grant funds for replacement tree planting. (See related article in vol 5, no 2 of this newsletter.) The resulting grant project was an ambitious undertaking that



Photo by Cindy Casey, WDNR

Dresser’s first Arbor Day observance included a school-wide coloring contest co-sponsored by Rural American Bank.

entailed tree removal and replacement in the vicinity of overhead electric utility lines, forming a four-person tree board, establishing a comprehensive tree ordinance, producing a tree care brochure for village residents, holding a first-time Arbor Day observance, performing a public tree inventory and producing an inventory-based urban forest management plan.

Without trained staff, the village knew they needed professional help with the technical aspects of the project. Kunde Co. Inc. Forestry Consultants, from the Twin Cities area, performed the tree inventory using GIS technology and produced a five-year management plan based on the inventory findings. The consultant also provided an ArcView training session so that village public works staff will be able to update the inventory as planting, maintenance and removal activities occur. Key among inventory

*continued on page 5*

### **Delafield** *continued from page 2*


These trees are managed as groups rather than individuals, and are included in the complete survey.

The department of public works is responsible for management of the tree resource and day-to-day activities. The parks and recreation committee provides guidance on policy development and management. One focus of their forestry program is to encourage more extensive floral, shrub and tree planting in both the public right-of-way and on private property.

Maintaining the rural character of the area amidst a building and development boom is a challenge. Delafield’s zoning ordinance requires developers to include within their landscape planting plan trees with a total caliper equivalent to the native hardwood species removed. For example, if a developer takes out an 8-inch tree, it would need to be replaced with four 2-inch trees. If the developer can demonstrate to the staff and plan commission that it is not feasible or reasonable to install the replacement trees, the plan

commission may grant exceptions. In conducting a field inventory, the developer’s arborist or landscape architect should identify and map all trees over 4 inches in diameter at breast height that are among the species on the native hardwood species list.

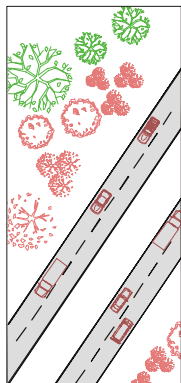
Private residences also play a significant part in maintaining the character of the surrounding area. The city actively promotes preserving existing woodlands and, where feasible, requires replacement of any mature vegetation lost due to building or driveway construction.

Delafield uses the environmental corridors along the Bark River for park and trail systems. The Bark River Trail extends from the western border of the city through Cushing Park and continues on to Lake Nagawicka. Glacial Drumlin Trail travels along the southern border of Delafield, offering scenic bicycling to Waukesha and Madison. It is a 47-mile trail developed on an abandoned railroad grade, surfaced with crushed limestone. The trail is open to hikers and bikers in the summer, and snowmobiles and skiers during the winter months. 

## Trees and Highways *continued from page 1*

what are some of the considerations you'll have to keep in mind?

The type of highway project to be built in your community will affect the planning and planting of new or replacement trees. If the highway is also the main street through your downtown, street trees may be appropriate if conditions permit. In this case, however, you may need to consider planting procedures that treat the trees as relatively short-lived plants that will grow in "containers"—either sidewalk cut-outs or aboveground planters. (See "Downtown Business Districts" in the spring 1998 issue of this newsletter.) As an alternative, the gateways to your town, and interchanges leading from main highways, might offer more practical planting sites. In these typically lower-density areas, new trees may have more room for optimum root growth and establishment. Your community may choose to use limited financial resources to plant trees where they have the best conditions for long-term health and where maintenance routines are less rigorous and costly.



Reconstruction projects often prompt local public outcry when trees, especially mature ones, are removed. But there may be sound reasons for their removal. Road reconstruction projects often must reroute underground utility lines which run close to existing trees. Even if care is taken to avoid visible damage to the trees, damage to roots may offer poor chance for tree survival after the project is completed. Replacing these trees in the same spots may be difficult for the same reasons. It may make more sense to move trees back out of the right-of-way onto private property abutting the new highway. Residential and commercial landowners next to the highway may welcome placement of trees to enhance both the properties and the roadway. (See "Tree Easements" in the summer 1998 issue of this newsletter.)

There will likely be modest to severe safety limitations on tree planting for your new or reconstructed highway or main street project since a tree in the wrong place may cause an accident. State highways, as well as county and local roads, are designed using national performance standards with strict safety criteria. Adequate visibility must be provided for motorists, especially at interchanges and intersections. A "clear zone," subject to variables of speed and slope, must be maintained at the edge of the highway. For highways designed for higher speeds, trees may not be considered appropriate if they are possible "targets" for cars which may leave the roadway. The landscape program at WISDOT in Madison does strive, however, to replace trees that are lost to construction or reconstruction by placing them in danger-free zones.

Early in your local planning, it is wise to consult with professionals who are familiar with highways designed for higher speeds. The WISDOT Landscape Program coordinator can help direct you to planning specialists who can properly design a landscape enhancement project without compromising the safety of motorists.

### Finding Funds


Typically, the landscape portion of a highway project will average less than one percent of the project budget. The priority of the highway design is to provide a safe and efficient transportation system. The landscape budgets of highway projects are used to create roadsides with an emphasis on safety and ease of maintenance.

However, if your community plans ahead, local, state and federal funds can be used to enhance the project budget to create a more attractive roadside landscape. For example, your community might compete for an urban forestry grant. Some of these funds might be used for planting trees, especially if your community already has an approved urban forest management plan. Modest grants are available from national urban forestry organizations for roadway landscape enhancement activities. An important source for highway landscaping and beautification funds is the federal TEA-21 (Transportation Efficiency Act) program, administered in Wisconsin by WISDOT.

These highway enhancement funds are available for both project design and implementation, with a 20 percent local matching funds requirement.

TEA-21 is a competitive grant program, so it is important for your community to think about the project and know the grant application deadlines. WISDOT will announce the 1999 enhancement grant program in the summer 1999. Applications will be due in the fall of 1999, and the actual grant awards will be made the following spring of 2000.

Trees and roadways can be good neighbors, but timely planning, solid citizen participation and funding enhancements will be necessary if your community wishes to improve the landscape of your upcoming state or local highway project. The addition or replacement of trees in highway corridors, be they urban or rural, must be carefully planned to avoid conflict with critical highway safety engineering standards.

For more information on trees and highways, contact your regional urban forestry coordinator (see p 16), or Mr. Leif Hubbard at the WISDOT Landscape Program at 608-267-6884. Information on the TEA-21 Enhancements Program is available from Mr. John Duffy, WISDOT Enhancement Program coordinator at 608-264-8723. 

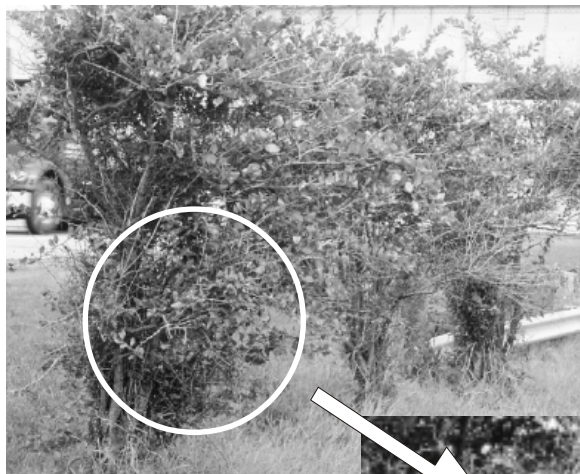


# Deicing Salt Problems in the Landscape

Dr. Laura G. Jull  
UW-Madison Dept. of Horticulture

Most people are aware of the corrosive effects of common road salt (sodium chloride) on autos and road surfaces. Over time, excessive amounts of road salt in soil can destroy soil structure, and reduce water infiltration and aeration thereby leading to compaction. In addition, road salt can injure many plants growing near or along roadsides, intersections, driveways and sidewalks.

Salt damage to plants can occur either from soil-borne salt or from salt spray. Soil-borne salt damage results from street or sidewalk runoff from melted salt-laden snow that washes into nearby soil. Salt spray injury, on the other hand, is an effect of small droplets of aerosol spray kicked up by fast-moving traffic on wet, salted roads. This spray can be lifted tens or hundreds of feet above the road surface, with winds depositing the droplets onto the foliage of nearby plants.



Witches' brooms on hawthorn from highway salt spray.

## Symptoms of salt injury

Symptoms of salt spray injury appear in early spring following the previous winter's salt application. Buds and small twigs on deciduous plants are desiccated by the salt and are more susceptible to

*continued on page 8*

## Project Profile *continued from page 3*

findings was the high overall condition of Dresser's public trees. Despite the absence of regular pruning and systematic tree care, over half of the village's trees were found to be in very good condition. Evergreens, including the popular but normally pest-prone blue spruce, were among Dresser's healthiest street trees. The consultant offered a possible explanation for the surprising finding—the scarcity of sidewalks in the village might translate into less root damage and greater rooting space.

Kunde Co. also produced a tree ordinance for Dresser. Although comprehensive in scope, the ordinance was scaled down and customized for the needs of a small village with limited resources. The consultant's other contribution to the project was a tri-fold brochure, *Caring for Our Trees*. Written for village residents, the leaflet offers science-based tree selection, planting and care recommendations for home landscapes in the Dresser area.

The project also included participation by Dresser Elementary in the village's first Arbor Day observance. Rural American Bank provided \$100 savings bonds to each grade's (K-3) winning artist in a school-wide coloring contest. A memorial tree planting dedicated to the former school principal, a

tree planting demonstration, children's songs, and refreshments donated by two local businesses rounded out a day which, according to Village Clerk Grace Bjorklund, drew many favorable comments.

Perhaps the most visible part of the grant project involved the removal and replacement of trees in conflict with overhead power lines. The village formed a four-person tree board (two village staff, two citizen volunteers) to make personal contacts and take orders for approximately 120 replacement trees. Although the tree removal was not without some initial controversy, Dan Nord of the public works department reports that, in the end, residents were very pleased overall with the results.

By all accounts, 1998 was a banner year for Dresser's tree care program. Meeting Tree City USA requirements for the first time was just one positive outcome of the village's grant project. Through active participation in each facet of the project, village staff and volunteers gained technical knowledge and a deeper appreciation for the scope of community tree issues. With new skills and heightened perspective on the local tree resource, the village is well-positioned for lasting, positive involvement in community tree management. Dresser's experience demonstrates that community size need not be a factor when it comes to making trees a priority. 🌳

## Community Tree Profile:

# Eastern Redbud - (*Cercis canadensis*)

by Don Kissinger  
DNR West Central Region

[Other names known by: Judas-tree]

**Native To:** New Jersey, south to central Florida, west to southern Texas, north to Iowa. Grows in rich, moist soils of mixed deciduous or pine woods, valleys and slopes. Oklahoma's state tree.

**Mature Height\*:** 20–35'

**Spread\*:** 20–35'

**Form:** Short trunked, broad, rounded; multi-trunked in most cases, but can be purchased as single stem specimen.

**Growth Rate\*:** Slow to medium

**Foliage:** Alternate, simple, heart-shaped; smooth margin; medium-coarse texture; 3–5" in length; leaves somewhat reddish when emerging, turning green as they expand.

**Fall Color:** Clear yellow

**Flowers:** Small clusters of 4 to 10 pea-like, pink-lavender blooms prior to leaf-out; often on the trunk as well as branches. Flowers can be eaten as a salad, or fried.

**Fruit:** Flat, papery, pea-like pods, 2–3" long, which turn brown in fall and persist into winter. Very low wildlife value.

**Bark:** Dark gray or brown with reddish underbark; smooth, becoming scaly with age. Trunk can be maroon-purple in color.

**Site Requirements:** Marginally hardy in Wisconsin—obtain trees from northern seed sources. Grows well in full sunlight or light shade. Adapts to either acid or basic soils. Trees can be transplanted easily when small. Performs well in naturalized or woodland settings.

**Hardiness Zone:** 4b–9

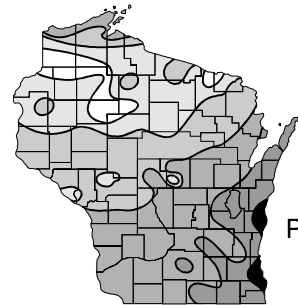
**Insect & Disease Problems:**

Redbud is susceptible to canker, *Verticillium* wilt, weed killers containing



Photo by Dick Rideout, WDNR

Redbud's ornamental form works well as a small accent.



Plant Hardiness Zones for Wisconsin

\*Urban tree size and growth rate vary considerably and are strongly controlled by site conditions.


2,4-D and, to a lesser extent, anthracnose. Its arching form makes it somewhat prone to ice damage.

**Suggested Applications:** Has been used effectively on wide terraces or medians with overhead utility lines. Nice in home landscapes and museum grounds.

**Limitations:** Grows fast and dies young (50–75 years); weak-wooded and subject to failure in wind or ice storms; due to its typical multi-trunk form and medium size, it is not recommended on narrow planting sites.

**Limitations:** Not widely available from the nursery industry. Not tolerant of severe drought. Major limbs sometimes split at crotch. Bark is susceptible to mechanical damage.

**Comments:** Summer pruning preferred, to avoid profuse sap flow. Has shallow root system.

**Common Cultivars:** 'Northland' and 'Columbus' 



Flowers coat a redbud's branches in spring.

## ***“Spring Cleaning” for Disease Management***

*by Glen R. Stanosz, Ph.D.*

*UW–Madison Depts. of Plant Pathology, and Forest Ecology and Management*

As the end of winter approaches, thoughts turn toward the coming change in landscape maintenance tasks. Snowplowing and salting will end. Preparations for planting and seeding will begin. Another part of our spring plan should be a careful landscape “spring cleaning” for tree and shrub disease management.

Microorganisms have stages in their life cycles that allow survival under conditions that are unfavorable for their growth. Disease-causing fungi and bacteria (pathogens) of our trees and shrubs must endure the cold and drying effects of Wisconsin’s winters. Many survive within plants or plant parts that were killed last year or within diseased portions of living plants.

With the coming of spring’s moisture and warmer temperatures, growth of microorganisms resumes. Pathogens may extend their distribution in woody tissues and expand lesions to cause additional dieback of twigs, branches and stems. In addition, reproductive structures often develop in these killed tissues. Reproductive structures of pathogens also form in early spring within fallen leaves, needles, twigs and cones. These can become sources of the inoculum (propagules such as spores) that is spread to again initiate disease.

A careful spring cleaning of the established landscape plantings and plant production areas can substantially reduce the amount of inoculum and greatly contribute to plant health. This plant disease management strategy, referred to as eradication, consists of removing and destroying plant materials colonized by pathogens. Diseased and dead branches should be removed before resumption of plant growth. Fallen leaves and other litter, missed or forgotten in fall, should also be collected. These plant materials should then be burned, buried or chipped and removed to a facility where proper composting procedures will result in destruction of the pathogen(s) they contain. Leaves and chipped woody materials colonized by pathogens should never be directly used as landscape mulches.

Management of many of the most commonly encountered tree and shrub diseases can be enhanced by practices that reduce inoculum early in spring. The



*Photo: University of Minnesota*

The severity of apple scab can be reduced by “spring cleaning.”

fungi that cause the scab disease of crabapples, and anthracnose diseases of many broad-leaved trees, overwinter in fallen leaves. Spores produced in fruiting bodies on these leaves are carried by the wind to initiate infection on young leaves in spring. Removal of leaves helps to break the cycles of these diseases. Fungi in the genus *Cytospora* survive within the cankers they cause on branches and stems. These pathogens produce airborne spores and other spores that are splashed or carried down stems in rainwater to infect fresh wounds. Pruning and destroying branches affected by cankers prevents

*continued on page 15*

## ***What Damaged This Tree?***

*by Kim Sebastian*

*DNR Southeast Region*



*Photo by Kim Sebastian, WDNR*

**Turn to page 15 to find out...**



## Salt Problems *continued from page 5*

cold injury. Severe salt spray injury can cause death of buds and twigs. The remaining branch produces a proliferation of new shoots beneath the area that was killed, resulting in a stem that resembles a witch's broom. Injured foliage has scorched margins, and plants may even fail to flower due to bud injury. Conifers are also injured by salt spray, with symptoms evident in late winter to early spring. Mature needles turn brown or yellow at the tips, and twigs die back. These needles do not recover from this type of injury and can appear unsightly as whole sides of trees can be affected.

Unlike salt spray injury, soil salt injury is slow to develop and injury progresses over several years. Salt is highly absorbent and tightly binds the soil water thereby making it unavailable for root uptake. Thus, even though soil moisture is plentiful, high salt levels create an artificial drought-like environment for plants. Water is actually drawn out of the root system to the saltier soil environment. Scorched margins on foliage appear in late summer or during hot, dry weather when soil moisture is limiting. Other symptoms that can occur from excess soil salt include stunting, production of fewer and smaller leaves, twig dieback, premature fall coloration and leaf drop, and reduction in flower and fruit size. Soil salt injury to conifers conveys similar symptoms as salt spray injury with one addition—old *and* new needles are affected. Regardless of salt damage, plant vigor is jeopardized. Trees and shrubs are then more susceptible to attack by insects and diseases and drought stress.

### Diagnosis

Diagnosing salt injury can be difficult as similar symptoms may result from drought stress, root damage, winter burn of foliage, air pollution, compacted soil, grade changes, nutrient deficiencies,

insects and diseases, natural gas leaks, waterlogging and improper planting. In general, salt damage to plants is more severe on the side of the plant facing the road. Plants downwind from the road show more damage, with most damage occurring within 30 to 50 feet of the road. Branches covered by snow show no damage, and those branches growing above the spray drift zone show no damage either. Plants growing in poorly drained soils or where runoff collects are severely injured. Often, the severity of damage increases with the volume and speed of traffic and the amount of salt used. If salt injury is suspected, either foliar analysis or soil salt tests are needed to confirm the diagnosis. These tests are available at a soil and plant analysis lab for a nominal fee. Contact your county extension office for specific instructions, location and costs for this service.

### Prevention of salt injury

There are many ways to prevent or alleviate salt injury. First, decide where primary salt applications are appropriate such as high-risk areas, highways, intersections, hills, steps and walkways; use limited salt applications in other areas. If possible, avoid using pure sodium chloride—a common salting agent. Instead, mix less than five percent of this salt with other abrasive materials such as sand, kitty litter, ash, cinders or other alternate deicing products such as calcium chloride, magnesium chloride or calcium magnesium acetate. This mixture is useful for low-volume roads or during temperatures at which salt is ineffective. If using a deicer, wait for application until all the snow is plowed and do not pile salt-laden snow onto plants. Do not use fertilizers as a deicer as this will burn the plants.

Early applications of small amounts of salt can be very effective in preventing the bonding of ice to pavement which then simplifies the removal of snow and ice after a storm. Once the ice has bonded to the

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## Upcoming Events

**March 18–21—*People, Places, Land and Life: 100 Years of Landscape Architecture***, midwest chapters of the American Society of Landscape Architects conference, Monona Terrace Convention Center, Madison, WI. Contact Ann Barrett, 715-366-4500 or [abarrett@uniontel.net](mailto:abarrett@uniontel.net).

**March 28–30—*Building With Trees National Conference***, Lied Conference Center, Nebraska City, NE. Contact the National Arbor Day Foundation, 402-474-5655 or [conferences@arborday.org](mailto:conferences@arborday.org).

**March 30–31—*Minnesota Shade Tree Short Course***. Bethel College, St. Paul, MN. Contact Tracey Benson at 800-367-5363 or [tbenson@extension.umn.edu](mailto:tbenson@extension.umn.edu).

**April 9–12—*Student Society of Arboriculture 3<sup>rd</sup> Annual Conference***, Eagle Bluff, Lanesboro, MN. Contact Tim Walsh, 715-346-4211 or [rtwalsh@uwsp.edu](mailto:rtwalsh@uwsp.edu).

**April 13—*The Practice of Restoring Native Ecosystems workshop***, Milwaukee, WI. Contact the National Arbor Day Foundation, 402-474-5655 or [conferences@arborday.org](mailto:conferences@arborday.org).





pavement, it will take more salt to remove the ice than it would have had a lighter application been made earlier. Application of salt after March 1 is very detrimental to plants because plants are breaking their dormancy and beginning to absorb water and nutrients from the soil.

One of the best preventive techniques is to plant salt-tolerant species near areas that are subject to salt spray or runoff. However, a plant's degree of tolerance to soil salts may be different from its aerial salt tolerance; therefore, woody plants may have been incorrectly categorized as completely resistant, when in fact, only one type of resistance was actually evaluated. For example, red oak (*Quercus rubra*) exhibits low salt spray tolerance but high soil salt tolerance, whereas Colorado blue spruce (*Picea pungens* var *glauca*) has the reverse situation with high salt spray tolerance but low soil salt tolerance.

In general, planting trees and shrubs on berms prevents the salty runoff water from moving into root zones. If salt-sensitive plants are used, plant them at least 60 feet away from highways and 30 feet away from city streets. In a home garden, barriers such as burlap placed around plants in late fall can prevent salt damage. Avoid shoveling piles of salt-laden snow over the root zones of sensitive plants. Flush high-saline areas with water in early spring to move the salt out of the plant's root zone and direct the drainage away from plants. During a warm winter spell, wash the vegetation to eliminate all residual salt before bud break. Use of antitranspirants and dormant oil sprays are ineffective in prevention of salt spray injury and are therefore not recommended.

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## Deadlines and Datelines

- 🌱 **Hyland R. Johns grant program**—The International Society of Arboriculture Research Trust offers grants ranging from \$5,000 to \$20,000 for research focused on the biology, management and care of trees and their relation to environmental, social and economic benefits. Proposals must be **received by April 1, 1999**. Visit their website at <http://www.ag.uiuc.edu/~isa/ISAResearchTrust/hrjohns.html> for more information.
- 🌱 The National Tree Trust, a private, nonprofit organization, is requesting applications for its year 2000 **America's Treeways and Community Tree Planting** programs. Part One, "Seedling Order Form," of their two-part grant application, is available and is **due May 31, 1999**. To receive Part One, "Seedling Order Form," or for more information on the America's Treeways and Community Tree Planting programs, please call Ashley Link at the National Tree Trust at 800-846-8733 ext 27, or send your address, phone number, and fax number to [alink@nationaltreetrust.org](mailto:alink@nationaltreetrust.org). Please include 98Urbal, in your message.
- 🌱 **Wisconsin DNR 2000 urban forestry grant Intent to Apply** forms will be mailed out in early April to everyone who receives this newsletter. If you are a local government or nonprofit, start thinking about the project you want to undertake in 2000. The **deadline is June 30, 1999** for submitting the Intent to Apply form. A full grant application packet will be sent in August only to those who have submitted an Intent to Apply. **Final grant application deadline is November 1, 1999.** 🌱

## Events, cont.

**May 13—Trees, People and the Law seminar**, Minneapolis, MN. Contact the National Arbor Day Foundation, 402-474-5655 or [conferences@arborday.org](mailto:conferences@arborday.org).

**August 1-4—International Society of Arboriculture Annual Conference and Trade Show**, Stamford, CT. Contact ISA, 217-355-9411.

**August 25-28—Shade Tree Wilt Diseases: A National Conference**, Minneapolis, MN. Contact American Phytopathological Society, 651-454-7250.

**August 31–September 3—Ninth National Urban Forestry Conference**, The Westin Seattle Hotel, Seattle, WA. Contact American Forests, 202-955-4500.

**September 28-29—Trees, People and the Law National Conference**, Lied Conference Center, Nebraska City, NE. Contact the National Arbor Day Foundation, 402-474-5655 or [conferences@arborday.org](mailto:conferences@arborday.org).

**November 8-9—The Practice of Restoring Native Ecosystems conference**, Lied Conference Center, Nebraska City, NE. Contact the National Arbor Day Foundation, 402-474-5655 or [conferences@arborday.org](mailto:conferences@arborday.org). 🌱

*If there is a meeting, conference, workshop or other event you would like listed here, please contact Dick Rideout at 608-267-0843 with the information.*

# Tree Spade Transplanting: Bigger Is Not Always Better

by John Ball, Associate Professor of Forestry,  
South Dakota State University

Americans are generally regarded as impatient people. We want everything now—why wait? This is evident in almost every aspect of our lives, from minute rice to one-hour photo finishing. This same “I don’t want to wait” attitude can even be applied to landscaping. The average American lives in a house less than seven years. They do not have the time to wait for a tree to grow from a sapling to a mature specimen. They need a big tree now.

Where there is a need, there is a way, and now large-tree transplanting has become a common landscaping practice. Some people disagree with this approach, arguing instead that younger and smaller trees will

become better adapted to the site. And while this argument has much merit, there is a place for tree spades. Large trees can provide “instant shade” if the transplanting candidates are carefully selected and

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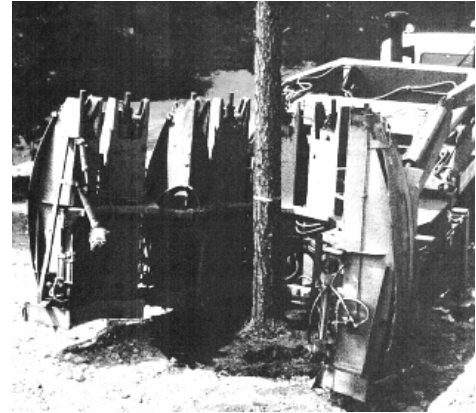


Photo by Dr. John Ball, SD State University

Moving large trees may provide “instant shade,” but smaller trees will probably outperform them in a matter of years.

## Working with Volunteers

by Tracy Salisbury  
DNR Northeast Region

Working with volunteers is very rewarding. They can bring diverse skills, knowledge and energy to your community forestry program. In programs where staff time is limited, volunteers can take on projects that may not otherwise get done. With proper supervision and training, volunteers can benefit the community while having fun working with others on worthy causes.

Here are a few suggestions that can make your volunteer program a win-win situation for all involved:

- ✦ **Encourage others to do their best.** Use training, coaching, counseling and mentoring to help volunteers do their best.
- ✦ **Have a vision.** Know where you want your program to go and how volunteers fit into your vision. Make a yearly written plan with program goals. Share it with the volunteers. Then move on it.
- ✦ **Mind your manners.** Simple things, like saying “please” and “thank you,” make a difference. Giving credit and praise for doing a good job is always appreciated.
- ✦ **Encourage creativity.** You can encourage creativity in others by avoiding phrases like, “We already

tried that,” “We can’t do that” and “That didn’t work last year.” New ideas need to be nurtured and creative folks cultivated.

- ✦ **Set high standards.** Have high expectations for your own work. Expect the best of those who volunteer in the program. Volunteers like to be affiliated with a quality program.
- ✦ **Give fair and consistent feedback.** Keep volunteers informed about things affecting their job.
- ✦ **Be open and honest** about your goals.
- ✦ **Support efforts to obtain education.** Learning is what volunteering is all about.
- ✦ **Use volunteers’ skills wisely.** Take into account their skills, interests and life experiences and how these can be used in your program.
- ✦ **Take the time** to listen to volunteers.
- ✦ **Involve volunteers** in goal setting, planning and decision making.
- ✦ **Most important of all,** appreciate the enthusiastic spirit and sense of humor volunteers can bring to your program. 🌱

## Transplanting *continued from page 10*

the move properly executed. It is not a question of whether it is good or bad technology but is the technology being correctly applied.

Trees selected for transplanting by tree spade are rarely taken from a nursery. Most nursery-grown trees have been root pruned once, or perhaps several times, during their lives to produce a more fibrous root system. If the trees have been properly root pruned, i.e., pruned at a closer distance than the anticipated transplanting size, they can generally recover from the stress of the transplant operation. Trees moved from a landscape setting, on the other hand, have not been prepared for the move by root pruning and are more vulnerable to transplant stress.

Unfortunately some tree spade operators ignore this fact and have the attitude, "I can lift it, I can move it." This often results in large trees moved to a new site becoming smaller over the years, rather than larger, as the tree dies back to a size their restricted root system can support. A good rule of thumb is: you can generally successfully move a 3-inch caliper tree with a 44-inch spade, a 5-inch tree with a 60-inch spade and an 8-inch tree with a 90-inch spade. Surprisingly these size categories are not based entirely on the amount of roots saved by the various size spades. While the larger spades will allow more roots to be moved with the tree, most trees are still going to leave more than 90 percent of their roots back at the original site. Another factor, often overlooked, in matching the spade size to the tree size is not the number of roots saved but the size of the roots severed.

When a tree is lifted by a tree spade you'll find a number of severed roots at the edge of the soil plug. The number of severed roots does relate to the species. Some trees have a coarse root system and may have only four or five woody roots severed by the spade, while trees with a fine root system may have as many as eleven or twelve. These severed roots can play a critical role in the success of the transplanting operation. Transplanted trees extend new roots out from the plug into the surrounding soil via two means: roots captured in the plug, and roots generated from severed roots. The number of roots captured in the plug has an obvious relationship with spade size—the larger the spade, the more roots captured. But the relationship regarding spade size and severed root is not as straightforward.

New roots are typically generated within 3 or 5 inches from the end of the severed root. The diameter of the severed root has a strong influence on whether it is capable of generating new roots. The optimum diameter appears to be about 1 inch or less. Roots that are severed at 4 or 5 inches in diameter may fail to generate any new roots, while roots that are severed

at 1 inch may generate three or four new roots. These new roots quickly expand out into the surrounding soil. I have seen newly generated roots extend out 4 feet or more in the first growing season. Thus, if too small a spade is used to move too large a tree, you may find that the blades are severing 2- or 3-inch-diameter roots rather than 1-inch. I always tell people to look at the size of the roots at the edge of the soil plug when using a tree spade. If the severed ends are 1 inch or so, you probably have the tree and spade size properly matched.

But matching tree spade size to tree size is not a guarantee of success. Trees do not survive transplanting necessarily because we save roots, but because we provide newly transplanted trees conditions to grow roots quickly into the surrounding soil. A transplanted tree is not truly established until it has restored its original root-to-shoot ratio. Thus, until the tree has expanded its roots to recover the 90 percent or more lost during transplanting, it is still considered stressed. Some people try to restore this root-to-shoot ratio by making the crown smaller, usually by pruning. However, this can be self-defeating since food manufactured by the leaves fuels the growth of new roots. Making the crown smaller can result in reduced root expansion thereby delaying establishment. Instead, it is better to find means of encouraging root growth.

Probably one of the best means of encouraging root growth is to use mulch. Walk through almost any forest and you'll find the ground covered with organic material—leaves, twigs, bark—in various stages of decomposition, along with herbaceous and woody plants. These fertile soil layers are intermingled with organic matter and mineral soil, and are teeming with tree roots. These same soils moderate soil temperature and moisture. In our typical landscape setting, the litter layer of the forest floor is replaced with turfgrasses. These grass-covered soils are more vulnerable to drying and temperature extremes. Perhaps a greater stress is the competitive ability of the turfgrass regarding water and nutrient absorption, as well as its allelopathic properties. Many turfgrass species produce chemicals that can inhibit the growth of tree roots. Established

*continued on page 15*

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If the size of the tree and spade are properly matched, tree spades can be an excellent means of successfully moving large trees.

Photo by Dr. John Ball, SD State University

# UW-Cooperative Extension

by Tracy Salisbury  
DNR Northeast Region

Cooperative Extension is part of the University of Wisconsin System and a division of University of Wisconsin-Extension. Its mission is to help the people of Wisconsin apply university research, knowledge and resources to meet their educational needs wherever they live and work.

Cooperative Extension helps people acquire knowledge and skills to . . .

- solve problems in their businesses
- improve their local governments and neighborhoods
- enhance the quality of their families' lives
- use natural resources responsibly
- help their children grow and learn



UW-Extension has had a long, rich history of education. It began, informally, as early as 1888. The goal was to provide the latest research from the University of Wisconsin directly to the people by a series of publications and a system of local professional institutes. In 1912, Wisconsin's first county extension agent was hired and began work in Oneida County.

Today, with an office located in each county, Cooperative Extension develops practical educational programs tailored to local needs, based on knowledge and research. County-based extension educators are experts in agriculture and agribusiness, community and economic development, natural resources, family living and youth development.

Extension educators work in partnership with local, county, state and federal governments, community organizations, business, and industry to address public issues. Faculty and staff plan and carry out programs with a wide array of community partners—volunteers, business and educational groups, and advisors.

Cooperative Extension provides Wisconsin citizens with quick and convenient access to information. Using state-of-the-art technology, Cooperative Extension brings educational programs to even the most remote parts of the state. Communication and computer networks link county extension offices and UW campus departments with other universities, state and federal agencies, and other sources of knowledge and information around the world.

Cooperative Extension reaches people through various means including workshops, publications, newsletters, media, audio and video conferencing, and InfoSource.

InfoSource is information at your fingertips. It gives recorded answers to commonly asked questions, at times people need the information most. Telephone and worldwide web access is available 24 hours, 7 days a week. The telephone-based service provides access to over 600 messages. See the accompanying list for the InfoSource number in your area, or access the messages in text form on the web at [www.uwex.edu/disted/infosrc/](http://www.uwex.edu/disted/infosrc/).

Here are just some examples of InfoSource Garden and Landscape topics:

- Landscape Enhancements
- Recycling Plant & Yard Wastes
- Soil Management & Care
- Trees & Shrubs: Selection & Care
- Trees & Shrubs: Diseases & Insects
- Evergreen Trees & Shrubs

## UW-Extension Horticulture Contacts

Brown County .....	<b>Paul Hartman</b> (Horticulture Agent) .....	920-391-4610
Dane County .....	<b>Jim Schroeder</b> (Horticulture Agent) .....	608-224-3706
	<b>Ann Munson</b> (Horticulture Assistant) .....	608-224-3721
Eau Claire County ....	<b>Kerry Ingraham</b> (Horticulture Assistant) .....	715-839-4712
Kenosha County .....	<b>Thomas Kalb</b> (Horticulture Agent) .....	414-857-1945
Milwaukee County ...	<b>Sharon Morrissey</b> (Home Horticulture Agent) .....	414-290-2412
	<b>Laurie Weiss</b> (Commercial Horticulture Agent) .....	414-290-2414
Monroe County .....	<b>Joey Oehler</b> (Horticulture Assistant) .....	608-269-8722
Racine County .....	<b>Patti Nagai</b> (Horticulture Agent) .....	414-886-8460
Waukesha County ....	<b>Jean Ferdinandsen</b> (Commercial Horticulture Educator) .....	414-548-7768
	<b>Ann Wied</b> (Home Horticulture Educator) .....	414-548-7768

Information is also available through the many brochures that Cooperative Extension produces each year. A free Garden and Homes catalog is available at your county office. A nominal fee is charged to help cover printing costs. Many of the publications can be previewed on the worldwide web at <http://www.uwex.edu/ces/pubs/>.

*continued on next page*

# The Idea Exchange...

Compiled by John Van Ells  
DNR Southeast Region


## Gypsy Moth Planning

The city of Mequon is planning for the day when the dreaded gypsy moth builds in population to where some control action is warranted. The **Mequon Tree Board** recommended that the city initiate a budget to eradicate gypsy moth infestations, which are expected within the next five years. Jill Harp, planner, did some research and found that there are two ways to spray for gypsy moth. Ground spraying is used on individual trees found to be infested and costs about \$50 per tree. Aerial spraying utilizes a plane or helicopter to spray acres of trees at a cost of \$8.50 to \$120 per acre, depending on the number of acres sprayed.

Jon Garms, director of public works, has budgeted \$8,000 for 1999 fiscal year in a capital improvement fund, with the intention of requesting \$8,000 to \$10,000 every year for the next five years. Garms stated, "This is a non-lapsing fund that will continue

to build so that, in the event there is a need to spray in the future to control gypsy moth, the money will be there." Garms added, "When the city has more detailed information about the state cost-share program for gypsy moth spraying, the city will refine this budget to fit the need." It's one way to plan ahead for the inevitable and keep your options open.  
*Info: Jill Harp, 414-242-3100 ext 178.*

## State Financial Assistance to Communities

The Wisconsin Department of Administration has compiled a catalog of aids and technical assistance provided to communities by all state agencies (no federal or private funding). The catalog is extensive and is located on DOA's website at: [www.doa.state.wi.us/deir/wcca.htm](http://www.doa.state.wi.us/deir/wcca.htm). The catalog is downloadable and printable using several software versions. DNR's aid programs are included in the catalog. If you have Office97 software, any given funding program is easily accessed by clicking on the page number in the Table of Contents. There are also Word 95 and pdf versions of the catalog on the site. 

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*Does your community or organization have an idea, project or information that may be beneficial to others? Please let your regional urban forestry coordinator know. We will print as many of these as we can.*

*If you see ideas you like here, give the contact person a call. They may be able to help you in your urban forestry efforts.*


## UW Extension *continued from page 12*

Cooperative Extension also offers volunteer opportunities through two successful programs—Master Gardeners and Tree Care Advisors. Master Gardeners are trained volunteers who help people in their community better understand horticulture and their environment. This national program was introduced to Wisconsin in 1977. The goal of the program is to educate and encourage volunteers to help the public with their horticulture inquiries.

The Tree Care Advisor program started in 1995, with interested individuals from Milwaukee, Waukesha, Kenosha and Racine Counties. Volunteers receive 30 hours of training in a variety of subjects dealing with urban tree care. In return, these volunteers provide 30 hours of time on projects related to urban trees. Currently this program is only offered in southeast Wisconsin.

### Counties that support InfoSource include:

Brown .....	920-391-4609	La Crosse .....	608-785-5575
Chippewa .....	715-831-5812 (Local)	Lincoln .....	715-261-1255
	888-893-9947 (Outside local area)	Marathon .....	715-261-1255
Dunn .....	715-831-5812 (Local)	Milwaukee .....	414-290-2450
	888-893-9947 (Outside local area)	Outagamie .....	920-832-4763
Eau Claire .....	715-831-5812 (Local)	Ozaukee .....	800-441-4636
	888-893-9947 (Outside local area)	Racine .....	414-595-2030 (Local)
Fond du Lac ...	920-922-9600		800-441-4636 (Outside local area)
Grant .....	608-723-2071 (Lancaster)	Sheboygan .....	800-441-4636
	608-822-INFO (Fennimore)	Washington ...	800-441-4636
	608-568-7507 (Platteville)	Waukesha .....	414-290-2450 (Local)
Jefferson .....	800-441-4636		800-441-4636 (Outside local area)
Kenosha .....	414-857-7901 (Local)	Winnebago .....	800-441-4636
	414-595-2030 (Local)		
	800-441-4636 (Outside local area)		

*If your county is not listed, you may call the closest local number, however it will be a toll call. *

Cooperative Extension offers something for everyone, from great publications to volunteer opportunities. To get involved, contact your local extension office listed in the government pages of your phone book. For additional information, check out their web site at: <http://www.uwex.edu/ces/> and the southeast horticulture web site at: <http://www.uwex.edu/ces/sehort/>.

This information was compiled from the UW—Extension web site. 



## Council News:

# Connecting Tree Boards

by Roald Evensen, Chair  
Wisconsin Urban Forestry Council

The Wisconsin Urban Forestry Council held a reception for community tree board members at the January urban forestry conference. Representatives from 15 communities attended, and the two-hour session highlighted the broad range of issues that face local tree boards. Some of their concerns included removal of hazard trees on public and private property, tree and landscaping ordinances, community education on urban forestry, and tree selection and planting procedures.

The council planned the reception in an effort to better understand the unique concerns of volunteer tree boards as they strive to improve their community forests. We hope this gathering may lead to more frequent contacts between community tree activists,



Photo by Bob Queen, WDNR

Council Chair Roald Evensen

members of the council and DNR regional urban forestry coordinators. We all have a lot to learn from each other!

On a related note, the council decided at its January meeting to host the first annual statewide Tree City USA awards banquet in the spring of 2000. This gathering will be an opportunity for TCUSA communities to network and share their successes and challenges with others. More information on next year's banquet will be available in upcoming newsletter issues. 🌳

## Council Awards Presented

The 1999 annual Wisconsin Urban Forestry Conference in Madison was the site of the Wisconsin Urban Forestry Council Award presentations this past January. Council Chair Roald Evensen presented the Project Partnership Award to Northern States Power Company for their Community Tree Renewal program, and the Distinguished Service Award to Christine

Giese for her tireless efforts in urban forestry in her hometown of Theresa, Wisconsin.

Piloted in 1994 in the Polk County village of Clear Lake, **NSP's Community Tree Renewal** projects have also taken place in Athens, Bayfield, Dresser, Hudson, Ladysmith, Menomonie, Neillsville, Park Falls, Viroqua and West Salem. Community Tree Renewal projects consist of identifying existing trees on public and private properties that are in conflict with overhead power lines, contacting and gaining permission from affected property

owners, removing the offending trees and stumps, and planting one or more replacement trees.

The impact of the partnership between NSP and each project community goes well beyond the direct benefits of Community Tree Renewal. The projects have been a consciousness-raising experience, bringing urban forestry to the attention of many of the communities for the first time. For most, participation in the program has led to expanded urban forestry efforts, such as the establishment of permanent tree boards, vegetation ordinances, inventories and management plans.

Community Tree Renewal is a recipe for success. It combines a public-private partnership with local volunteer efforts for a win-win project, and sets the stage for improved community tree management.

**Christine Giese** is the village president of Theresa, Wisconsin and a full-time registered nurse. This would be more than enough for most people, but the winner of the 1999 Urban Forestry Distinguished Service Award has also taken a leadership role in creating Theresa's urban forestry program.

Chris established the village tree board, completed a village tree inventory, developed a management plan

*continued on page 15*



Photo by Dick Rideout, WDNR

Norris Wahl, line superintendent for Northern States Power Company, accepts the Wisconsin Urban Forestry Council's 1999 Project Partnership Award.

## Council Awards *continued from page 14*

and implemented many community tree activities such as the village's Arbor Day celebrations. By involving the community in these activities, Chris has raised Theresa's awareness and understanding of its trees and its environment. Her efforts succeeded in gaining Theresa recognition as a Tree City USA.

Chris has a personal commitment to urban forestry as well. She studied and passed the International Society of Arboriculture's Certified Arborist exam and she serves as vice-chair on the Wisconsin Urban Forestry Council.

Congratulations to both Chris Giese and Northern States Power Company—you are inspirations to us all. 🌿

Photo by David Stephenson, WDNR



Theresa Village President Christine Giese leads children in celebration about trees on Arbor Day. Christine is the recipient of the Wisconsin Urban Forestry Council's 1999 Distinguished Service Award.

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## Transplanting *continued from page 11*

Kentucky bluegrass and fescue sod can greatly slow tree root expansion. When 3-inch-caliper trees have been planted in mulch and sod locations, the difference in root expansion into the surrounding soil is dramatic. While trees on mulched sites may have roots extending several feet beyond the plug, trees on the sod sites often have roots only extending several inches or perhaps a foot beyond the plug.

The best mulch is a 3- to 4-inch layer of organic matter—bark, twigs and even composted leaves—that extends beyond the plug. I always recommend that the area around the plug be rototilled at least 2 or 3 feet beyond the plug after the tree has been placed, and this same area, as well as the top of the plug, be covered with mulch. This will allow the newly expanding roots to grow out into more porous soil that is sheltered from temperature extremes and will maintain more even moisture. This same area is also

protected from competition with turfgrasses. And remember to mulch out, not up. Too often mulch is piled up against the trunk—mulch volcanoes. This provides little benefit (except to prevent mower blight) and may cause problems by sheltering rodents and keeping the lower trunk too moist.

Tree spades are an excellent means of successfully moving larger trees. If the tree size and spade size are properly matched and conditions are provided to permit rapid root growth, people can have large trees that soon resume their normal growth. 🌿



Photo by Dr. John Ball, SD State University

Organic mulch is important to the health of the transplanted tree, but no more than 3-4" and avoid "mulch volcanoes!"

## Spring Cleaning *continued from page 7*

intensification of *Cytospora* canker. Such sanitation pruning should always be done in dry weather, to avoid providing fresh wounds during the moist periods which favor infection.

Multiple benefits are obtained from spring cleaning for landscape tree and shrub disease management. The direct reduction in inoculum can reduce the occurrence of disease. Preventive application of fungicides might be delayed, reduced in frequency or even eliminated. Pruning to remove sources of inoculum can be another reason to accomplish needed structural pruning of trees and shrubs. And while helping to keep trees and shrubs healthy, the neatly kept landscape offers an aesthetic appearance that most people can enjoy. 🌿

From page 7 -

## What Damaged This Tree?

**Answer:** This tree was accidentally "pruned" by a truck traveling too close to the curb. After this damage occurred, reflective arrows were attached to the tree and a sign installed on the corner that reads: "Clearance at curb 8'10". 🌿

*Do you have pictures of tree damage others ought to know about? Send them to Kim Sebastian (address on page 16) and we'll print them here!*

Wisconsin Department of Natural Resources  
Bureau of Forestry  
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Madison, WI 53707

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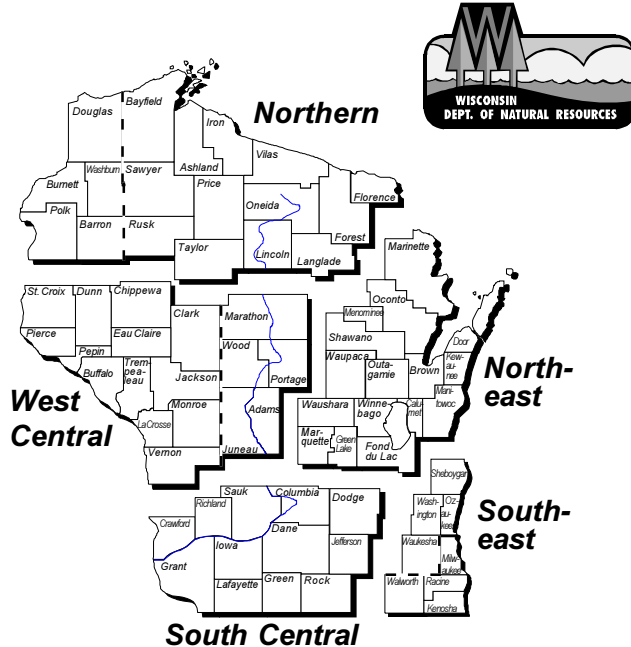
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Wisconsin  
DNR Urban  
and  
Community  
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Contacts



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**West Central Region - W½**  
**Northern Region - W½**  
Cindy Casey  
Regional Urban Forestry Coord.  
1300 West Clairemont Ave.,  
Box 4001  
Eau Claire, WI 54702  
Phone: (715) 839-1606  
Fax: (715) 839-6076  
e-mail: caseyc@dnr.state.wi.us

**West Central Region - E½**  
**Northern Region - E½**  
Don Kissinger  
Regional Urban Forestry Coord.  
5301 Rib Mountain Drive  
Wausau, WI 54401  
Phone: (715) 359-5793  
Fax: (715) 355-5253  
e-mail: kissid@dnr.state.wi.us

**South Central Region -**  
David Stephenson  
Regional Urban Forestry Coord.  
3911 Fish Hatchery Road  
Fitchburg, WI 53711  
Phone: (608) 275-3227  
Fax: (608) 275-3236  
e-mail: stephd@dnr.state.wi.us

**Statewide -**  
Richard Rideout  
State Urban Forestry Coord.  
Wisconsin DNR  
P.O. Box 7921  
Madison, WI 53707  
Phone: (608) 267-0843  
Fax: (608) 266-8576  
e-mail: rideor@dnr.state.wi.us



**Northeast Region -**  
Tracy Salisbury  
Regional Urban Forestry Coord.  
1125 N. Military Ave.  
P.O. Box 10448  
Green Bay, WI 54307  
Phone: (920) 492-5950  
Fax: (920) 492-5913  
e-mail: salist@dnr.state.wi.us

**Southeast Region -**  
Kim Sebastian  
Regional Urban Forestry Coord.  
2300 N. Martin Luther King Jr. Dr.  
Milwaukee, WI 53212  
Phone: (414) 263-8602  
Fax: (414) 263-8483  
e-mail: sebas@dnr.state.wi.us

**Southeast Region - North ½**  
John Van Ellis  
Urban Forestry Coord.  
Pike Lake State Park  
3544 Kettle Moraine Road  
Hartford, WI 53027  
Phone: (414) 670-3405  
Fax: (414) 670-3411  
e-mail: vanelj@dnr.state.wi.us  
(Sheboygan, Washington, Ozaukee & Waukesha Counties)

Visit our World Wide Web site at: <http://www.dnr.state.wi.us/org/land/forestry/uf/>